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**Performance measurement of cross-culture supply chain partnership:
a case study in the Chinese automotive industry**

Weixi Han*, Yuan Huang**, Douglas Macbeth***

**Nottingham Business School, Nottingham Trent University, United Kingdom*

***Cardiff Business School, Cardiff University, United Kingdom*

****Southampton Business School, University of Southampton, United Kingdom*

Corresponding author: Douglas Macbeth, D.K. Macbeth@soton.ac.uk

Performance measurement of cross-culture supply chain partnership: a case study in the Chinese automotive industry

This study explores a performance measurement system for a dynamic supply chain partnership in a cross-cultural context. An initial framework is constructed by reviewing the existing literature, followed by an in-depth case study in the Chinese automotive industry, where the framework is refined to address the multi-cultural setting. A performance measurement system which includes the relationship strategy and operational measurement criteria for a supply chain partnership, has been developed. The relationship strategy contains elements of strategy orientation, management style, interdependence, mutual organisational characteristics and common goals. The operational measurement criteria consist of commitment, trust, communication behaviour, information sharing, participation decision, quality, production performance, delivery, cost, supplier strength, attitude, compromise and loyalty. The last three operational measurement criteria are found to be particularly relevant to the cross-cultural feature. While existing studies tend to focus on either specific measures or individual organisations, this paper for the first time proposes a comprehensive framework to measure the performance of supply chain partnerships. The cross-cultural perspective provides a further unique view on how a performance measurement system can be responsive to the dynamics in practice.

Keywords: supply chain partnership; performance measures; case study; automotive industry; cross-cultural collaboration

1: Literature review

Supply chain partnership (SCPR) management and performance measurement have been theorized as a crucial means for manufacturers to achieve sustainable competitive advantage and superior performance (Lee and Whang 2004; Hult, Ketchen and Arrfelt 2007; Cousins, Lawson and Squire 2008; Vanpoucke, Vereeckbe and Boyer 2014). Cao and Zhang (2011) noted that a good relationship with suppliers can give a manufacturer competitive advantage over others in the marketplace. Hence, much attention has been paid in the literature to developing effective SCPR, where the importance of partnership

and performance to the entire supply chain is particularly stressed (Ellram 1991; Macbeth and Ferguson 1994; Landeros et al. 1995; New 1996; Maloni and Benton 1997).

Performance can be defined as a metric used to quantify the efficiency and/or effectiveness of an action (Neely et al. 1995). Within the context of SCPR, performance of both manufacturers and suppliers should be taken into account, and an effective measurement system adopted to monitor their relationship (Chan and Qi 2003; Gunasekaran, Patel and Tirtiroglu 2001). On the one hand, supplier performance is vital to the success of the manufacturer-supplier relationship when measuring individual participants' input into the supply chain management process (Cousins et al. 2008). On the other hand, manufacturer performance is narrower, and assesses the prospective relationship and organisational capabilities in relation to company performance (Koufteros, Verghese and Lucianetti 2014). An effective SCPR performance measurement system provides a decision support environment to improve the performance of a collaborative supply chain (Angerhofer and Angelides 2006). Bititci et al. (2012) anticipated a number of emerging performance measurement challenges, which include investigating the impact of multicultural collaborations on SCPR performance.

SCPR is a close, cooperative relationship, formed by two separate firms, such as manufacturers and suppliers, who work closely together to plan and execute supply chain operations towards common goals, thereby achieving more benefits than acting independently. Child, Faulkner and Tallman (2005) explained that partnership has two dimensions, which may result in management difficulties, compared with the management of a single authoritative organisation. The first dimension is that the partnership is headed by two or more authoritative sources, so a situation of multiple

persons in charge can result, and therefore the expectations of many parties should be considered or satisfied in partnership management. The second dimension is that partners may have cultural differences, which is a more serious problem in international partnerships. The partnership may face dilemmas on the basis of the above two characteristics. In the context of the supply chain partnership, a single firm no longer affects performance. Rather, the performance of all partners involved contributes to the overall performance of the entire supply chain.

Bititci (1995) asserted that performance measurement systems must be considered holistically, and must be relevant to the many stages in the manufacturing process. Regarding performance measurement systems, this self-centred outlook inspires local optimisation of an individual entity. It is thus evident that performance measurements should correspond with the holistic view and span organisational boundaries (Chan and Qi 2003). In a supply chain, every contributor should share mutual objectives and collaboratively supply products and services that meet the needs of the consumer. Furthermore, supply chain performance needs to be examined across the organisations in order to increase global optimisation of the supply chain process.

1.1 The role of supply chain partnership performance measurement systems

Supply chain performance measures act as a kind of productivity control, and it was therefore necessary to show how improvement and competitive advantages can be maintained (Gunasekaran et al. 2001; Chan and Qi 2003). Performance measurements are indispensable to ensuring action. In this study, 'supply chain partnership performance measurement' refers to identifying, qualifying, selecting, evaluating, developing and certifying suppliers. This is a dynamic process that occurs over a period of time and is designed to ensure that the manufacturer has a pool of suppliers large enough to provide the materials and services needed.

SCPR needs to take into account a wider relationship, assessing the interplay of performance measures. Child, Faulkner and Tallman (2005) suggested that complementarity is a main principle for selecting a partner. If complementarity is lacking between partners, or if a partner's expectations cannot be understood or supported, the result can be a failure of cooperation. Kelly, Schaan and Joncas (2002) pointed out that a good choice of partners must consider compatibility, meaning complementary advantages and disadvantages. Partners must have the ability to resolve differences of opinion, and must also have sufficient capacity and capability to contribute to cooperation. Walter et al. (2003) proposed that commitment, trust and satisfaction are 'relationship quality' measures (describing commitment as a lasting intention to build and maintain a long-term relationship). Morgan and Hunt (1994) emphasized that the role of trust and commitment in relationship marketers is crucial. The marketers understood the relationship before the supply side did, and therefore their literature is valid in the research context. Cox (2001) asserted that supply chain relationships should be approached as long-term collaborations based on trust. Austin and Seitanidi's (2012) research indicated that compatibility between partners is also an important factor affecting the partnering relationship. Brouthers, Brouthers and Wilkinson (1995) pointed out that, in the choice of a partner, partners who have complementary skills should be considered, there should be a culture of cooperation between manufacturer and supplier, and they should have compatible targets which are commensurate with the level of risk. The relationship need not only be expounded within a complementary balance concept, but can also be described by common interests, consistency, interdependence and other concepts (Douma et al. 2000). Austin and Seitanidi (2012) believed that the operating system is the key to supporting more effective mutual cooperation. The cooperation activity of a partnering relationship can

be assessed, communicated and coordinated if partners have similar management systems. Therefore capability compensation and status between partners should be considered when manufacturers select suppliers.

1.2: The culture impact of relationship decisions

Cultural characteristics provide grounds for the interpretation of actions within a SCPR performance measurement context. The culture of a business can be defined as the combination of usual qualities that impact on how a group will respond to its environment (Hofstede 1980). Organisational culture and national culture consist of different dimensional levels. National culture underpins the culture of an organisation and provides the basis for the norms of organisational behaviour (Hofstede, Hofstede and Minkov 1991). Particular countries and nationalities tend to have their own distinct cultures, and this makes cultural clashes a probable occurrence in the modern economy. It is posited that a ‘culture gap’ between business partners can lead to very different organisational practices, managerial decisions and business ethics (Hewett et al. 2006; Hofstede 1980; Kogut and Singh 1988; O’Reilly and Chatman 1986; Schein 1985; Tse et al. 1988). Accordingly, it is further proposed that culture can impact business performance.

Regardless of the increased popularity of the partnership as a business model, academic commentary is lacking in a number of aspects. Some research in the literature on SCPR concerns the relative competency in performance (Benton and Maloni 2005; Bititci et al. 2005; Carr and Pearson 1999; Liu et al. 2012; Narayanan, Narasimhan and Schoenherr 2015; Nyaga, Whipple and Lynch 2010; Paulraj, Lado and Chen 2008; Yeung 2008); however, only Ribbink and Grimm (2014) have investigated cultural difference through the lens of supply chain relationship. The diverse results suggest that additional research is necessary in order to obtain empirical evidence to form the basis

for a comprehensive and reliable understanding of SCPR performance measurement systems for supplier selection by cross-cultural manufacturers.

Therefore, SCPR performance measurement from a cross-cultural perspective can provide an insight into the performance measurement systems in a partnership.

The remainder of the paper is organised as follows. Section 1 examines the literature on SCPR, followed by an explanation of how the study is designed to address the identified research questions in Section 2, where an initial framework of SCPR performance measurement is proposed. The multicultural component is then investigated in a cross-sectional case study of the Chinese automotive industry in Section 3, before the findings are presented in Section 4. Finally, Section 5 concludes the paper, and section 6 suggesting future research directions.

2: Development of theoretical framework

The primary focus of this paper was to provide an answer to the research question, by exploring and establishing a framework of SCPR performance measurement indicators (PMIs) to assess the effectiveness of multicultural collaboration.

SCPR was developed within the framework, including relationship strategy and operation measurement of the key driving forces identified from the literature. Each of these criteria was considered separately. The subsequent sections investigate all these criteria for the purpose of forming cross-cultural SCPR.

Both the popular press and academic research view performance measurement criteria from different perspectives, such as trust, coordination, interdependence, participation, information sharing, conflict resolution, commitment, comprehensive, integration, product quality, product performance, delivery reliability, cost and inventory. Following Melnyk et al's. (2014) performance measurement research directions on "what the firm wants to achieve (or communicate by its strategy) and what

the firm measures and rewards are not synchronised with each other (i.e. there is a lack of ‘fit’), we incorporated the performance measurement criteria into relationship strategy and operation measurement criteria (see Table 1).

[Insert Table 1 here]

At a strategic level, the relationship process lays the foundations for how relationships with suppliers will be developed and managed. Relationship strategy refers to the possibility of achieving a comprehensive performance or competitive advantage in value activity if both partners cooperate in aspects of their relationship where they may collaborate, such as strategic goals, values and other areas (Lambert and Schmeterman 2012). The relationship strategy between the manufacturer and supplier is consistent with its content in a supply chain strategic demand analysis. Relationship strategy meets the indicator demand in SCPR supplier selection analysis.

At the operation measurement criteria level, selection has been cited as one of the reasons for the successful implementation of partnering (Brouthers, Brouthers and Wilkinson 1995; Hagen 2002). In this field of discourse, supplier selection is an issue that is relevant to both practitioners and researchers, and the criteria used to choose suppliers are a fundamental part of this process. Choosing the right partner is important, because the failure of many partnering attempts can easily be traced to poor partner selection at the planning stage (Pansiri 2005). In choosing appropriate partners, research identifies operation measurement criteria such as compatibility, capability, commitment and control as criteria for successful pre-selection of partners (Hugh and Faulkner 1995; Mendleson and Polonsky 1995; Hagen 2002).

Above all, it can be seen that the critical criteria of the supplier selection enables both manufacturers and suppliers to more effectively capitalise on the potential for development. There is little doubt that supplier selection is critical for successful SCPR

measurement; however, what is needed for achievement in both high-level (relationship strategy) and detailed (operation measurement criteria) criteria requires more in-depth understanding and exploration of the empirical research.

Finally, the literature suggests that SCPRs may be a significant moderating factor on performance (Chen, Paulraj and Lado 2004; Johnston and Staughton 2009). Therefore, the researcher investigates what is clearly missing from the literature as a judicious examination of how SCPRs orchestrate their responses, and how cross-cultural aspects influence decision-making criteria. During this review and evaluation process, a number of under-researched areas have been identified. In conclusion, several key areas for further research include:

(1) Studying the whole lifecycle of SCPR, from the initial demand of PMS analysis. Research on SCPR in the cross-cultural collaborative business environment is scarce. This recognises that there are major gaps between the theoretical foundations for SCPR exploration.

(2) An empirical study needs to bring influencing criteria into an overall framework to explore PMS interaction relationships in a cross-cultural collaborative business environment.

(3) This study takes the investigation of the SCPR literature into IJVs among multiple nationalities. It does this by contextualising how PMI plays a role in SCPR, as seen from both the manufacturers' and suppliers' perspectives.

(4) This is done via the development of a conceptual framework that examines how cross-cultural collaborators explore and measure effective SCPR in the Chinese automotive sector.

(5) The conceptual framework can then be used, tested and further developed by IJV manufacturers and their tier-one suppliers.

Despite the rapid growth of the Chinese automotive industry, research on the performance measurement of SCPR remains nascent (McEvily, Perrone and Zaheer 2003; Zhu, Sarkis and Lai 2007; Zhao et al. 2006a). Very few studies have captured the dynamic of SCPR as a multi-cultural component. Rezaei (2015) argued, “Not only do the buyers evaluate suppliers, but also the suppliers have the opportunity to evaluate buyers” (p.4888). This study builds upon Rezaei’s two-way partnership selection concept to explore how such a selection process and the management of multicultural partnerships could be supported by a systematic performance measurement system. Two research questions are investigated:

RQ1. What are the key performance measures for SCPR?

RQ2. How could SCPR performance be affected by cross-cultural partners?

3: Methodology

This research aims to explore performance measures for SCPR. A research strategy, containing both inductive and deductive elements was employed. The former produces tentative theories based on observation, and the latter involves testing with evidence (Baker 2003; Maylor and Blackmon 2005). An initial framework, including the key criteria of SCPR performance, was developed inductively by observing the existing literature on SCPR, supply chain management and performance measurement. The framework was then analysed and refined deductively with empirical evidence from a cross-sectional case study. As advocated by Yin (2003), the deductive use of case study research links rich empirical data to provisional theories and provides opportunities for theory refinement. Given the lack of research, and, consequently, evidence, in SCPR incorporating a multicultural setting, this research employed a multi-case study approach which is widely recognised for building or extending theories and

adding confidence to findings (Eisenhardt 1989; Voss, Tsikriktsis and Frohlich 2002; Yin 2003). The automotive industry often involves international collaboration, in which multicultural complexities are well represented (Milker and Harrison 2012). The Chinese automotive industry is a typical example, given the government policy of promoting international investment (Holweg, Luo and Oliver 2005).

International-invested brands of automotive joint venture manufacturers occupy over 90% of the market in China (Holweg et al. 2005; Richards and Yang 2007). Patterns of behaviour and performance expectations are inconsistent among the international partners. International joint ventures (IJV) managers, therefore, may be confused about the priorities on which to focus with different partners. Underpinning this is the lack of a coherent set of performance indicators to establish the links between behaviours and effectiveness against business objectives (Bititci 2012). This provides evidence to support the fact that it is no longer sufficient to merely focus on the individual performance of either the manufacturer or the supplier.

3.1: Case selection

In order to represent SCPR in the multi-cultural setting, four manufacturers, including three typical IJV configurations between China and America, Europe and Japan, and four of their tier-one suppliers in the Chinese automotive industry were selected for the study. Eisenhardt (1987) suggests the use of four to ten cases for multi-case study. This sampling guidance avoids the dilemma between insufficient evidence for theory development and too much qualitative data to handle. A total of eight companies were involved in this paper. Table 2 provides an overview of the cases.

[Insert Table 2 here]

3.2 Data collection

The empirical data collection process was informed by the conceptual framework developed from the literature. Semi-structured interviews were conducted with key personnel in each of the sample companies to investigate the specific nature of the multicultural collaborators and the complexity of the SCPR. Each interview took around one hour and was transcribed for subsequent analysis. Ninety percent of the respondents had worked for the company for more than three years, confirming their ability to describe developments over time. Through in-depth interviews with multiple Chinese and international managers, an understanding of the different dimensions of partnering relationships, and how these relationships were operated and evaluated in a multicultural business environment was obtained.

According to Eisenhardt (1989, p.540), “data analysis frequently overlaps with data collection”. Interview questions, as well as answers from the participants were structured in line with the conceptual framework developed from the literature. The interview data were broken down into discrete sections (i.e. words, sentences and paragraphs) in the opening coding step through a line-by-line analysis of the interview transcripts, which yielded initial codes of the SCPR process. Further steps included cross-sectional analysis, linking positive and negative elements, as well as differing views (Eisenhardt 1989; Miles and Huberman 1994). Evidence from the interviews not only examined the initial framework, but also provided an insight into how such a framework could be interpreted differently in varying cultural settings.

4: Results and analysis

This paper analyses the data through classification and themes, acknowledging context and framework, and drawing links with research paradigms and perspectives. The dynamic partnership will significantly influence the internal processes, practices and

implementation activities. Given this, and the forces internally generating change and demanding responses, manufacturers and supplier partnerships must constantly seek ways to improve performance and reduce vulnerabilities. Research gaps show that there are different perspectives surrounding SCPR operations and relationship measurement roles. Data analysis associated with the interpretation and discussion of outcomes thus facilitates the conclusion and recommendations, resulting in a strong conceptual foundation and extending the theory and framework to resolve the findings revealed in Table 3.

[Insert Table 3 here]

Interviewees were asked to elaborate on factors that facilitated and drove supplier evaluation. Depending on the route of the discussion, a series of follow-up questions were asked in a semi-structured fashion, similar to the earlier procedure: *What criteria do you think are important when your company selects a supplier as a partner?* (Or: *What criteria do you think are important when your company is being selected as a partner?*) If applicable: *Is this different from dealing with a domestic Chinese company? Could you please comment on the criteria you use to measure a partnership performance?* It appeared that the key driver behind the extent to which SCPR could take place hinged on a set of supplier capabilities that enabled collaboration between the manufacturer and supplier. The collaborative supplier criteria were pinpointed as being most critical for relationship strategy and operational measurement criteria.

4.1: Relationship strategy

The first category that emerged from the data was processed as relationship strategy. Relationship strategy emerged from the empirical data as the congruence of the lifecycle of partnership strategic goals and objectives of two organisations regarding the strategic and manufacturing priorities of the relationship. Respondents articulated a

‘strategic intent’, reflecting an obsession with winning in the world marketplace by creating a synergy between the manufacturer and supplier relationship, strategic goals, capabilities and current resource stocks (Hamel and Prahalad 1994). In the empirical data, respondents highlighted relationship strategy, management style, mutual organisation characteristics, interdependence and common goals. Based on their own characteristics, respondents explored the relationship strategy expectations from both the manufacturer’s and supplier’s points of view.

Strategy orientation reflects how the manufacturer and supplier can perceive a strategic partnership in a number of ways. They may view it as part of the bigger picture and, in so doing, disregard their own long-term strategy when devising a strategy for the partnership. Additionally, they may view it as so integral to their competitive strategy that, if they were to fail, this would have to be significantly altered:

“Supply chain partnership strategy cannot be separated from the joint-venture manufacturer’s relationship; the strategy should fit the requirements of the manufacturer and the supplier should keep updating products. Develop the strategy which is satisfactory for market demand” (Interviewee UC-3, 2014).

It can be argued that companies engaged in strategic SCPR interpret the other party as an extension of their own business (Frazier, Spekman and O’Neal 1988; Lambert, Emmelhainz and Gardner 1996). Concentration is a key feature of the Chinese market. Strategy should therefore be adopted which will be beneficial for both the localization policy and global synchronous purchasing. The strategy orientation considers both international presence and the benefits of the supplier’s local presence. The suppliers, who are already part of the manufacturer’s international production system, will then jointly establish a factory with the manufacturer in China (Interview JC-3, 2014). This would be beneficial to SCPR performance.

The management style in relationship strategy may involve attempts to establish SCPR with a joint decision-making process, control systems and communications (Lavie, Haunschild and Khanna 2012).

“We should establish a guaranteed partnership, integrate supplier resources, encourage existing suppliers, develop new suppliers, conduct global purchasing, and implement fixed decision-making based on their own behaviour in the aspect of strategy” (Interviewee EA-1, 2014).

Depending on the SCPR, the project management style of vehicle production is implemented between the manufacturer and supplier. EA respondents contended that

“We integrate joint departments with smooth operations and clear authority and responsibilities. The international party has supplier selection and decision rights” (Interviewees EA-1; EA-4, 2014).

Regarding the management style in EB, Chinese respondents mentioned that since operations management concepts were different in the original joint venture, the international party had an advanced management concept, while the Chinese party had a rich cultural heritage. EB international respondents suggested that subcontracting would be more realistic and cautious, due to previous failure in a joint venture experience. New IJV cooperation and operations form a unique opportunity to seize the Chinese market. EB’s supplier supported this opinion.

Mutual organisational characteristics were identified by one manufacturer to:

“Mutually respect and identify the values, accept win-win cooperation, and accumulate international management experience, to create an international influence and competitiveness” (Interviewee JC-2, 2014).

The common goals in the data findings were establishing a profitable community and achieving cooperative goals. A profitable community could be formed

by interdependence with suppliers combined with the benefits of the suppliers' local presence.

“Loyalty and trust can be replaced with equity based on common goals. Common goals are adapted for establishing a communication committee, which can invest, purchase and set up factors jointly with the supplier” (Interviewee JC-3, 2014).

Common goals help to improve trust. This leads to continuous improvement, which positively influences customer satisfaction. Therefore, common goals form the basis for developing effective SCPRs in China. This illustrates the fact that suppliers satisfying the manufacturers' international party systems are capable of working with international party cultures. From the case information, it was apparent that JC and its supplier achieved a status of collaborative management. On the other hand, JC's international party required suppliers from its own country to have a presence in China. This would establish SCPR reflecting the relationship strategy of mutual organisational characteristics. The common goals in UC reflected the production of advantageously tailor-made products, demonstrating a synergy between the manufacturer and a number of suppliers. This helped to ensure an optimal and efficient manufacturing process. The common goals required both parties to be equally involved in their performance measurement and to reach an agreement with each other.

4.2: Operation measurement criteria

According to the interviews, manufacturers and suppliers were involved in successful collaborative projects. It turned out that highly motivated suppliers had the desire to fulfil the requirements of their manufacturers. The literature names trust, commitment, participation decision, product performance, cost, supplier strength and quality as key features, which were all mentioned in the interviews. In addition, attitude, strong

loyalty, information sharing of intellectual property and compromise were found to be particularly relevant to the multicultural context.

The literature on operation measurement highlights two features (Chan et al. 2003): qualitative criteria (e.g. commitment, trust, information sharing, communication behaviour and participation) and quantitative criteria (e.g. quality, supplier strength, product performance, delivery and cost). In Paulraj, Lado and Chen's (2008) Buyer-Supplier Relationship Performance research paper, quantitative criteria were explained in depth regarding the measurement of buyer and supplier performance. The quantitative criterion of empirical data included supplier strength, which reflects size, operational capability, supplier development ability, high standards and successful experience. The analysis of supplier strength reflects the supplier selection described by Paulraj et al. (2008), and confirms the framework criteria description. Production quality was not explored, but was acknowledged by the majority of manufacturers. Production performance and cost reflect the successful employment of advanced technology, and therefore guaranteed operational production. Delivery reflects the economic cycle which was evident in EA's green production and characteristic of technological innovation. The manufacturer's background analysis, commitment to honesty, credibility and trust of integrity in the partner's relationship were all explored through the empirical data.

Intellectual property is a new finding to emerge from this study. Empirical data emphasized the fundamental aspect of information sharing. Both EA and JC, as advanced technology manufacturers, considered that intellectual property is an important criterion.

“Both the manufacturers and suppliers may enhance the protection of the intellectual property rights of the production in order to improve the technological

research and development as well as the application ability of the key suppliers” (Interviewee S2-1, 2014).

This criterion is reflected in the findings of Fredendall et al.’s (2016) study on supply chain management practices and intellectual property protection in China. They found that some managers reduced risks by not transferring proprietary knowledge to their Chinese sites, and instead focused on investing in cost-efficient standard technologies and processes. This suggests “the Chinese government could make it more attractive for foreign investors if they would enforce existing intellectual property” (p.136-137; p.149). The empirical data found this to be the case among German-Chinese manufacturers’ SCPRs and Japanese-Chinese manufacturers’ SCPRs.

Communication behaviour was confirmed by two manufacturers and was recognised as an important criterion of IJV partners’ relationship management, illustrated as positioning of social skills and an understanding of Chinese cultural knowledge. As a manufacturer with two experiences of IJVs, EB’s international party stated,

“For the first time of cooperation, the international party sends the manager to China, taking turns in power with Chinese leaders. The international party is responsible for global procurement and IJV management, with advanced management concepts and very high and specific demands, while the Chinese party has a simple and honest management style with strong cultural deposits. The operations management ability during joint venture period has improved more or less, but many problems still exist. For the second time of cooperation, as the Chinese party had cooperated with another international party before, there could be a reduction in IJV operation costs” (Interviewee EB-3, 2014).

Regarding the understanding of Chinese cultural knowledge, UC reflected that

“We should pay more attention to our partner’s Mianzi [concept of Face], especially for the leader of the Chinese party” (Interviewee UC-4, 2014).

Communication and participation decisions are described in the empirical data. Paulraj et al. (2008) claimed that communication influenced manufacturer and supplier SCPR. According to Kale, Singh and Perlmutter's (2000) strategic alliance study, the language utilised in strategic alliance studies can pose a challenge, particularly if language barriers exist between the interface manager and the partner,

“The basic criteria are 1, understanding English very well; 2, understanding international business rules; 3, communicate with and balance the Chinese and American parties well; 4, advancement and high quality” (Interviewee UC-2, 2014).

This provides empirical evidence to suggest that communication between organisations is a relational competency that can improve performance for supply chain partners. Participation in decision-making is one of the most important criteria for the manufacturer and supplier relationship. The supplier should be reliable, credible, recognise the manufacturing development direction and fully participate in the programme's life cycle.

Attitude was a new finding from this study's empirical data. Disparity between partners in the ideals of national culture is more likely to hinder collaboration than differences in corporate culture (Weber, Shenkar and Raveh 1996). In light of IJV's experiences, attitude is important in ensuring a comfortable start for SCPR.

Compromise was also a new finding in the empirical data, and was first demonstrated in the supplier selection. Compromise involves reaching an agreement between two parties with different requirements. This is discussed in the following statement:

“In the partnership, the manufacturer's international party has very strict requirements within its own process; the Chinese party has its own process. Therefore, the two parties may need to compromise over when to measure the

relationship and select the supplier. Different types of suppliers could be considered” (Interviewee EA-2, 2014).

Loyalty was also a new finding that emerged from the interviews. The manufacturers controlled the equities of tier-one suppliers, forming a ‘pyramid’ of SCPR (Jia and Lamming 2013), while the SCPR with the suppliers was stable. This is a factor which is difficult to change once formed; holding a certain share of the equity of important suppliers, loyalty and commitment were the most commonly mentioned factors in JC. SCPR would bring associated benefits of a larger share of business for both manufacturer and supplier, longer-term relationships and consequent stability, fewer organisational conflicts, and the inclination and intention of working together, sharing information and benefits, a decrease in price sensitivity and more referral behaviour (based on positive word of mouth). This would lead to greater loyalty and commitment (Sahay 2003).

Finally, it also turned out that the higher the quality of the requirements imposed by the manufacturers, the more difficult it was to achieve SCPR readiness.

5: Discussions and conclusions

5.1 Discussions

As empirical studies on SCPR and performance measurement in the Chinese automotive industry are virtually non-existent, this setting is a unique context, and incorporating manufacturing was perceived as advantageous in enriching the theoretical contribution in these areas. The conceptual framework examining the measurement and effectiveness of SCPR can be considered as the point at which theory meets practice. By providing an in-depth case study account, in which the criteria of particular relevance in multicultural

SCPR are both identified and addressed, the research provides an original and much-needed contribution to the knowledge.

Both manufacturers and suppliers recognised common goals and cultural differences. Manufacturers adjusted their strategy orientation and design management style initiatives accordingly. SCPR involves mutual support and interdependence between manufacturers and suppliers. SCPR and IJV should mutually affect one another. Inherent cultural aspects concerning communication and attitude necessitate a different approach when selecting suppliers to measure performance: more effort needs to be spent on monitoring supplier strength and quality and intellectual property assurance. Analysis of multicultural characteristics assures alignment of relationship strategies and operation measurement criteria. As evidenced by this study, this alignment is crucial to building essential criteria, such as equal involvement in strategic orientation, and avoiding potential culture clash and compromise. The cross-cultural background of the manufacturer has a positive influence on the supplier at the same time. It demands change to its status in the SCPR, but due to the limitations of technology and benefits, suppliers need more support from manufacturers. Manufacturers and suppliers should jointly develop SCPR.

The relationship strategy category indicates that a high degree of cooperation exists, whereby, in the case of the corporate production plan, design and integrating resources, multiple departments will enrol in SCPRs. Complementarity was not a concept that was discussed by the research respondents. Manufacturers need to work on common development with suppliers who are driven by market demand. This will guarantee efficient product operation and the provision of updates. Considering multicultural SCPR, the relationship strategy illustrates mutual fit and recognition. The relationship strategy could be adjusted to fit the requirements of the Chinese market,

satisfy international parties' requirements, and achieve mutual organisational characteristics and the synchronous development of multiple relationships.

Melnyk et al. (2004) recognised the orchestrating role of performance measurement systems in operations management and asserted that the “performance measurement system is ultimately responsible for maintaining alignment and coordination” (p. 213). The measurement does not exist at the same level throughout; rather this should consist of multi-level criteria structure, based on the conceptual definition of the operation measurement criteria. Drawing from the measuring categories of Choi and Hartley (1996) and Crane et al. (1999), three types of criteria were explored in practice: relation factors, cooperative behaviour and quantitative criteria (Chan et al. 2003). The relation criteria of trust, commitment, attitude and a high degree of loyalty were deeply analysed by the underlying management (Demirbag, Weir and Mirza 2003; Cao et al. 2010). By aligning cooperative behaviour with performance, through participation decisions, communication was examined, and the quantitative criteria of product performance, cost, quality, intellectual property, size and successful experience explored in practice.

Established cooperative relationships between suppliers based on commitment and mutual trust, through participation and communicating, helped both manufacturers and suppliers to enhance their competitiveness. The way in which these roles are divided seriously restricts the building of a scale effect in the Chinese automotive suppliers' industry. It was found that the supplier remained in a disadvantaged position in SCPR, while the manufacturer occupied a much stronger position. The supplier had a positive attitude towards improving their strength and competitiveness, having gained an understanding of SCPR and the need to make some changes. At the same time, the multicultural manufacturer had a positive influence on the supplier. However, due to the

limitations of technology and benefits, the supplier needed more support from the manufacturer.

According to the data analysis, cross-cultural SCPR characteristics answered the research question of performance measurement systems' implications for SCPR between cross-cultural organisations, and the research contribution on evaluation and identification of new research agendas associated with cultural differences in partnership activities.

The culture was a strong theoretical variable impacting the operation of SCPRs and performance of the four manufacturers and their suppliers. The multicultural business environment meant that effective SCPR dimensions existed in practice, regardless of background. Cross-cultural management brought changes to SCPR, and different international parties also displayed individual characteristics in how they deal with SCPR. From the empirical data, it was found that EA focused on rules, the international party worked rigorously, complying with rules of no racial discrimination, maintaining a fair operation environment and upholding human rights; EB stressed the importance of cultural conflict and the market, JC emphasized technology flows and UC paid attention to communication, although, it is difficult to balance the relationships of Guanxi [personal networks] and Renqing [rules of exchange].

SCPR performance measurement and cross-cultural characteristics cannot be separated. If cultural differences are apparent in businesses, it becomes probable that disparity will occur regarding a commitment to and satisfaction with the relationship (Griffith, Myers and Harvey 2005; Markoczy 2000). As shown in the case of EB, the first IJV manufacturer, the international party had complete domination. In the second IJV manufacturer, the Chinese party held the most dominant position, retaining some of the suppliers from the original venture.

“A supplier with experience of serving an international manufacturer is preferred; that supplier should have their own strategy for working with us in building the partnership, their own joint values and vision, all of which must be acceptable to us” (Interviewee EB-1).

SCPR in different cultural backgrounds has been explored here. The industry relationship is paramount, the bilateral agreement is secure, potential culture clashes are avoided, and the international party's system is satisfied. These can be compromised, based on agreement, and compared transversely. Finally, developing a healthy organisational culture positively affects relationship performance.

5.2 Conclusions

SCPR management has been challenged by the involvement of multiple parties (e.g., partners, collaborations) and the inherent culture differences (Child, Faulkner and Tallman, 2005). Much of the existing literature on SCPR has been focused on the performance of either individual organisation in the partnership or the entire supply chain in which partnerships occur. Research on the partnership itself including a two-way management perspective (Rezaei, 2015) seems limited, particularly lacking empirical evidence. Hence, this research has explored SCPR operations and measurement in multicultural business environments formed by organisations from different nationality backgrounds. The research firstly created a set of SCPR performance measurement indicators, namely the ‘conceptual framework’, by observing the existing literature to establish the links between behaviours and effectiveness against business objectives (addressing RQ1). The framework is further investigated and refined with empirical evidence from a cross-sectional case study, where the performance measurement indicators are interpreted in a multi-cultural context (addressing RQ2).

The refined conceptual framework shows SCPR components, categories under components, refined criteria and interactions, thereby ascertaining associated impacts and implications of multicultural SCPR phenomena. The empirical evidence provides a unique contribution in terms of interpreting those criteria in different culture settings. SCPR measurement assesses the functioning of partnership to provide simple but rigorous and repeatable tools which may be used to improve the effectiveness of the SCPR process (Bititci et al. 2005). PMI was addressed by exploring and constructing a complete framework for SCPR in a multicultural collaborative context. As such, the framework helps to illuminate the importance of national culture, development and general differences in viewpoints of SCPR application between manufacturers and suppliers. The rest of the section outlines the theoretical findings of the paper, practical implications, and directions of future research.

5.2.1: Theoretical findings

Effective multicultural SCPR was measured from the perspective of SCPR performance, which included levels of satisfaction reported and degree of collaboration. Both manufacturers and suppliers need to recognise common goals and cultural differences. Manufacturers should adjust the strategy initiatives accordingly; suppliers should positively follow up manufacturers' strategies. Inherent cultural aspects concerning communication and attitude necessitate a different approach when selecting suppliers, and more effort needs to be expended on monitoring supplier strength and quality and intellectual property assurance. Manufacturers and suppliers should jointly develop the relationship, creating interdependence and building respect for each other, while they communicate and cooperate in a variety of ways. If this process fails to deliver success, termination of SCPR may follow. Performance can be measured through cost-saving, mutual co-operation and assistance in problem-solving efforts.

Analysis of cross-cultural characteristics assures alignment of the process of SCPR criteria. Cross-cultural elements, in turn, influence the measurement of the relationship. As evidenced by this research, this alignment is crucial to building essential measurement criteria, such as equal involvement in strategic orientation, avoiding potential culture clashes and compromising, but insisting on the baseline requirements to be achieved as agreed. The challenge of the Chinese auto market and profit margins achieved also affect SCPR performance. Veloso and Kumar (2002) addressed issues of the comparisons with Japan, Korea and the globalisation of the automotive industry. Since Western automotive manufacturers and suppliers in the Asian market, which broken Japanese or Korean automotive traditional parochialism of the Asian supply chain systems. "*As OEMs integrate operations, bidding of SCPR is becoming open to suppliers outside the Japanese or the Korean*"(p.26). In practice, regarding SCPR performance measurement, the European-Chinese JV had the European partner as the stronger partner; JC preferred consultation and UC saw addressing management suppliers regarding operational improvement with communication as important, with a minimal role for understanding Chinese culture. They were more likely to work closely with regulators to find regulatory solutions in a spirit of consultative decision-making, rather than confrontation. This does not mean that EA was eager to be regulated while UC was not. It is in this context that stronger regulations in EA have largely been set in consultation with industry, or driven by the industry itself. EB stressed the importance of cultural conflict and the market.

5.2.2: Practical implications

Bridging the gap between theory and practice involves a compromise that incorporates fostering both theoretical change and change in practice, and provides evidence of how the background cultural characteristics of collaborating organisations influence

decision-making. This research has explored and refined the dynamic nature of SCPR in the Chinese automotive industry. Through the multicultural business environment, both manufacturers and suppliers seeking SCPR could first use the framework and refine criteria internally to assess potential partners for proposed SCPR. On the other hand, if SCPR is already in existence, both manufacturers and suppliers could jointly evaluate the framework and criteria, and reach agreement on the effective and efficient SCPR they want. The dynamic nature could help Chinese automotive groupings define long-term associations, advanced mutual planning and problem-solving processes. Contextualising is necessary regarding multicultural SCPR performance measurement, as seen by both manufacturers and suppliers, particularly regarding SCPR input and where SCPR performance measurement is applied.

6: Future research recommendations

Future research could involve the researcher going back to the sample cases to testify how the importance of each criterion is being confirmed, and obtaining new findings on the relevance of national culture and organisational behaviour. Specifically, studies could use combinations of qualitative and quantitative methods over time to better capture the variables and outcomes of interest. For example, they could focus on the separate capturing of predictor and outcome variables using a combination of both survey and archival measures (Craighead et al. 2009). Moreover, this study suggests using methods such as multiple criteria decision-making (MCDM) methods to measure SCPR based on the criteria the researchers have found important. While addressing the empirical issues raised in the literature review of this research was not an easy task, enriching the methodologies will allow operations management scholars to make greater contributions to the field, and the development and extension of SCPR theories. It is, however, hoped that this is not the final result from this cross-case study approach,

and that in time the research can be continued, thus leading to the successful and sustained use of the SCPR concept.

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Table 1. Supply chain partnership performance measurement Indicators

Categories	Key Criteria	Description	Select author(s)
Relationship Strategy	Strategy orientation	Gain access to or acquire unique and valuable resources, or leverage resources	Eisenhardt and Schoonhoven, 1996
	Management style	Structure on distinct methods, control systems, decisions format, communication styles	Covin and Slevin, 1988; Datta, 1991; Austin and Seitanidi, 2012
	Interdependence	Combine mutual forces to reach a common objective	Andaleeb, 1996
	Mutual organisational characteristics	Minimise interpersonal and organisational differences	Cao and Xiang, 2012; Mahlendorf <i>et al.</i> , 2012; Zaheer and Venkatraman, 1995
	Common goals	Multiple partners working together to achieve common goals	Pidduck, 2006; Zhang and Goffin, 2001
	Complementarity	Impact on effectively aspects of businesses, integrate competencies and activities	Ohmae, 1989; Spekman and Sawhney, 1990
Operation measurement criteria	Commitment	Crucial enough to allocate substantial resources to maintaining	Morgan and Hunt, 1994; Kwon and Suh, 2004;
	Trust	Confident act in own interests when taking action and will not act unpredictably to disadvantage	Anderson and Narus, 1990; Cai <i>et al.</i> , 2013; Gulati, 1995;
	Communication behaviour	A critically important relational competency, leverage for mutual gains within collaborative	Paulraj <i>et al.</i> , 2008
	Information sharing	Effective and methodological in managerial roles and ultimately impact on success of the partnership	Angeles and Nath, 2001; Elofson and Robinson, 2007;
	Participation decision	Active in the formulation of business strategy; Satisfied each partner with the relationship	Mohr and Spekman, 1994; Cao <i>et al.</i> , 2010
	Quality	Manufacture of products with high quality and performance standards	Leong, Snyder and Ward, 1990
	Delivery	Delivery schedules or promises, react quickly to customer orders	
	Cost	Production and distribution of the product at low cost	
	Production Performance	Improve products quality; reduce customer time; production design and operational efficiencies.	Paulraj <i>et al.</i> , 2008
	Supplier strength	Size, scales, sales, industry relationship	

Table 2. Characteristics of sample cases

Case company	Supply chain position	Company overview	Interviewee
EA	Europe - China joint venture manufacturer	EA is an international joint venture founded by a European party in the 1990s. EA's production departments including Research and Design (R&D), Vehicle engine production, Vehicle production, Sales, and After-sales services.	Purchasing Manager; Marketing Manager; Sub-company director; Sub-company director assistant
EB	Europe - China joint venture manufacturer	The first joint venture of EB's international party was established in the 1990s and terminated at the end of the 2000s. EB's international party joined another company in the 2010s. EB produces cars in China and designs car models in its European centre. EB's products include Vehicle engine production, Vehicle production, Components Research and Design (R&D), Sales and After-sales services.	Investment Manager; Purchasing Manager; Supplier Relationship Manager; Strategy Manager
JC	Japan - China joint venture manufacturer	JC was established in the 2000s with a Japanese vehicle manufacturer's party. JC engaged in Vehicle Research and Design (R&D), vehicle production, Sales and After-sales service.	Purchasing Manager; Investment Manager; Supplier Relationship Manager; Strategy Manager
UC	American - China joint venture manufacturer	UC's international party is one of the world's largest automakers. UC has four major production base, eight vehicle production plant, UC is one of the leading companies in Chinese automotive industry, which offers the broadest vehicle brands in China	Purchasing Manager; Quality Manager; Marketing Manager; Supplier Relationship Manager
S1	UC's tier-one supplier	S1 was established at the end of the 1990s, which is IJV and operated by Chinese and America parties. S1 main products include automotive seat belts and airbags. The products are mainly used by famous automotive manufacturers.	Purchasing Manager; Quality Manager; Investment Manager
S2	EB's tier-one supplier	S2 is an international joint venture by Japanese party and set up by Japanese supplier. S2 is mainly engaged in producing one-way clutch, friction plate/dual disc and clutch components.	Purchasing Manager; Strategy Manager
S3	UC'S tier-one supplier	S3 is an international joint venture group. S3 is the best transmission technology product and service supplier in the world.	Strategy Manager; Relationship Manager
S4	EA's tier-one supplier	S4 is joint venture supplier, which is jointly invested and established by three parties in China, America and Germany. S4 is specifically engaged in automotive exhaust system production.	Purchasing Manager; Relationship Manager; Strategy Manager

Table 3. Supply chain partnership performance measurement indicators refinement

Categories	Key criteria	Empirical data refinement							
		EA	EB	JC	UC	S1	S2	S3	S4
Relationship strategy	Strategy orientation	◆	◆	◆	◆		◆	◆	
	Management style	◆	◆				◆	◆	
	Interdependence			◆					
	Mutual organisational characteristics			◆					
	Common goals	◆	◆	◆	◆				
	Complementarity								
Operation measurement criteria	Commitment	◆		◆	◆				
	Trust				◆				
	Communication behaviour		◆		◆				◆
	Information sharing	◆		◆			◆		◆
	Participation decision	◆							
	Quality	◆		◆	◆			◆	
	Production performance	◆		◆					
	Delivery	◆							
	Cost			◆			◆	◆	◆
	Supplier strength	◆	◆		◆			◆	
	Attitude*		◆		◆				◆
	Compromise*	◆			◆				
	High loyalty*			◆					

Note: ◆, what is confirmed in empirical research
Note: *, what is new finding in empirical research